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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:

18 November 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: THERAPEUTIC CANCER VACCINE

(57) Abstract: The present invention relates to polypeptide fragments capable of raising a specific T-cell response, wherein said fragment comprises a peptide consisting of at least 9 consecutive amino acid residues of ML-IAP as well as to said fragments for use as medicaments. The invention furthermore relates to use of said polypeptide fragments in the manufacture of a medicament for treatment of a clinical condition, such as cancer. The invention also relates to methods of selecting a peptide comprising a fragment of ML-IAP for use in a vaccine composition as well as to vaccine compositions comprising isolated ML-IAP (SEQ ID NO:1) and/or one or more fragments thereof.

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# INTERNATIONAL SEARCH REPORT

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<b>A. CLASSIFICATION OF SUBJECT MATTER</b>		
IPC 7 C07K14/47 A61K39/00 C07K16/30 C12N5/06		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols) <b>IPC 7 C07K</b>		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the International search (name of data base and, where practical, search terms used) <b>EPO-Internal, BIOSIS, Sequence Search, WPI Data, EMBASE, PAJ</b>		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>SCHMOLLINGER JAN C ET AL: "Melanoma inhibitor of apoptosis protein (ML-IAP) is a target for immune-mediated tumor destruction."</p> <p>PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, vol. 100, no. 6, 18 March 2003 (2003-03-18), pages 3398-3403, XP002293965</p> <p>ISSN: 0027-8424</p> <p>page 3400, left-hand column, paragraph 2 -</p> <p>page 3400, right-hand column, paragraph 2</p> <p>page 3400, right-hand column, paragraph 2 - page 3401, right-hand column, paragraph 2</p> <p>page 3403, left-hand column, paragraph 2 -</p> <p>page 3403, right-hand column, paragraph 1</p>	27,52,53
Y		1-54
-/-		
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C.		<input checked="" type="checkbox"/> Patent family members are listed in annex.
° Special categories of cited documents :		
*A* document defining the general state of the art which is not considered to be of particular relevance		
*E* earlier document but published on or after the international filing date		
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)		
*O* document referring to an oral disclosure, use, exhibition or other means		
*P* document published prior to the International filing date but later than the priority date claimed		
*T* later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention		
*X* document of particular relevance; the claimed Invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone		
*Y* document of particular relevance; the claimed Invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.		
*&* document member of the same patent family		
Date of the actual completion of the international search		Date of mailing of the international search report
17 September 2004		07/10/2004
Name and mailing address of the ISA		Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Huber, A

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International Application No  
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	PATENT ABSTRACTS OF JAPAN vol. 2003, no. 02, 5 February 2003 (2003-02-05) & JP 2002 284797 A (HOKKAIDO TECHNOLOGY LICENCE OFFICE CO LTD), 3 October 2002 (2002-10-03) abstract ----- ANDERSEN M H ET AL: "Spontaneous cytotoxic T-cell responses against survivin-derived MHC class I-restricted T-cell epitopes in situ as well as ex vivo in cancer patients" CANCER RESEARCH, AMERICAN ASSOCIATION FOR CANCER RESEARCH, BALTIMORE, MD, US, vol. 61, no. 16, 15 August 2001 (2001-08-15), pages 5964-5968, XP002283854 ISSN: 0008-5472 the whole document -----	1-54
Y	WO 00/03693 A (JENNER BIOTHERAPIES INC) 27 January 2000 (2000-01-27) page 4, line 27 - page 6, line 21; claims 1-11 -----	1-54
A	WO 00/77201 A (ASTRAZENECA UK LTD ; ASTRAZENECA AB (SE)) 21 December 2000 (2000-12-21) claims 1-22; sequences 3,11 -----	1-13
P,X	ANDERSEN MADSEN HALD ET AL: "The melanoma inhibitor of apoptosis protein: A target for spontaneous cytotoxic T cell responses." JOURNAL OF INVESTIGATIVE DERMATOLOGY, vol. 122, no. 2, February 2004 (2004-02), pages 392-399, XP002293966 ISSN: 0022-202X the whole document -----	1-54

# INTERNATIONAL SEARCH REPORT

International application No.

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## Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:
  - a. type of material
    - a sequence listing
    - table(s) related to the sequence listing
  - b. format of material
    - in written format
    - in computer readable form
  - c. time of filing/furnishing
    - contained in the international application as filed
    - filed together with the International application in computer readable form
    - furnished subsequently to this Authority for the purpose of search
2.  In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

# INTERNATIONAL SEARCH REPORT

International application No.  
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## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:  
**see FURTHER INFORMATION sheet PCT/ISA/210**
2.  Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

**see additional sheet**

1.  As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3.  As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4.  No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.1

Although claims 41-46 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

Although claims 14-18 are directed to a diagnostic method practised on the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International Application No

PCT/DK2004/000259

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
JP 2002284797	A	03-10-2002	NONE		
WO 0003693	A	27-01-2000	AU WO	4990999 A 0003693 A1	07-02-2000 27-01-2000
WO 0077201	A	21-12-2000	AU WO US	5544500 A 0077201 A1 2003087319 A1	02-01-2001 21-12-2000 08-05-2003